MODEL

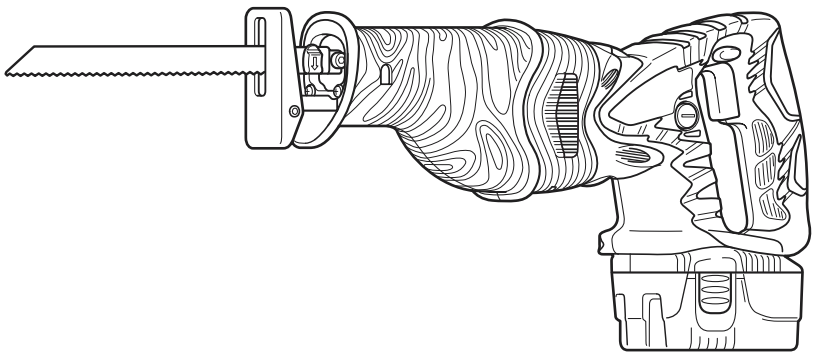
CR 18DMR

Hitachi
Power Tools

C

CORDLESS RECIPROCATING SAW CR 18DMR

TECHNICAL DATA AND SERVICE MANUAL



LIST No. G824

June 2005

REMARK:

Throughout this TECHNICAL DATA AND SERVICE MANUAL, a symbol(s) is(are) used in the place of company name(s) and model name(s) of our competitor(s). The symbol(s) utilized here is(are) as follows:

Symbols Utilized	Competitors	
	Company Name	Model Name
D	DEWALT	DC385
M	MAKITA	JR180DWD
R	RIDGID	R844
B	BOSCH	1644-24
W	MILWAUKEE	6514-20

CONTENTS

1. PRODUCT NAME

Hitachi 18 V Cordless Reciprocating Saw, Model CR 18DMR

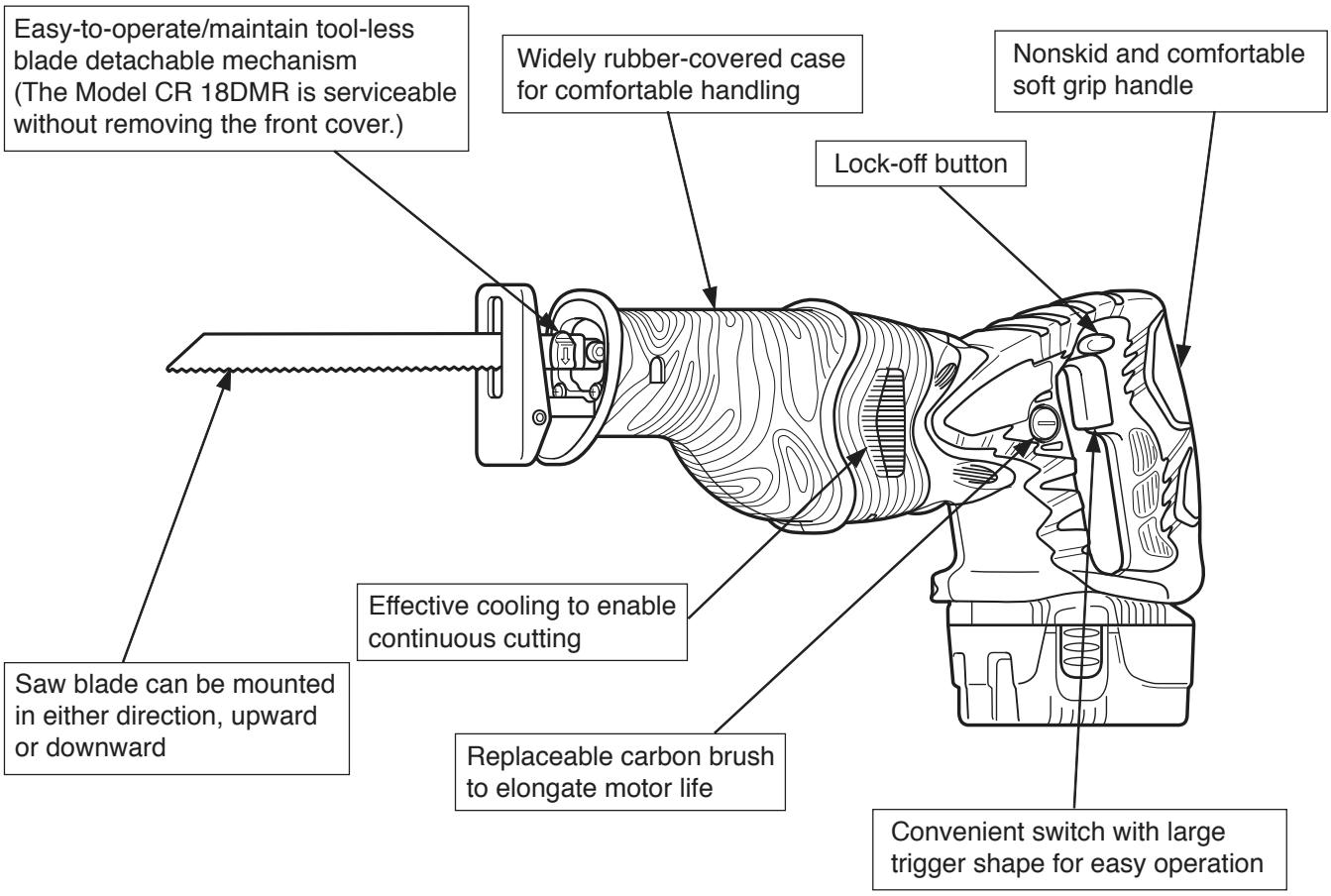
2. MARKETING OBJECTIVE

The new Model CR 18DMR is the upgraded version of the current Model CR 18DV. The Model CR 18DMR is of the popular DMR-series design and compatible with the new flat battery. The Model CR 18DMR features the carbon brush-replaceable, powerful and long-life motor, Hitahci-original tool-less blade detachable mechanism that is easy to maintain and comfortable soft grip handle for ease of operation. In addition, the Model CR 18DMR is equipped with the high-strength components equivalent to the 24-V product Model CR 24DV.

3. APPLICATIONS

• Cutting metal, wood, plastics, etc.

4. SELLING POINTS



4-1. Selling Point Descriptions

(1) Easy-to-maintain tool-less blade detechable mechanism

Recently, most saber saws on the market are equipped with a mechanism that requires no tool such as hexagonal wrench for mounting and removal of saw blades. The Model CR 18DMR is also equipped with such a mechanism in order to replace saw blades speedily.

[Features of the tool-less blade detachable mechanism]

① Easy to mount and remove saw blades

Saw blades can be easily mounted and removed just by pressing the lever.

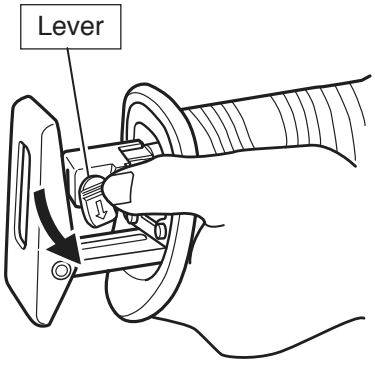
② Easy to maintain

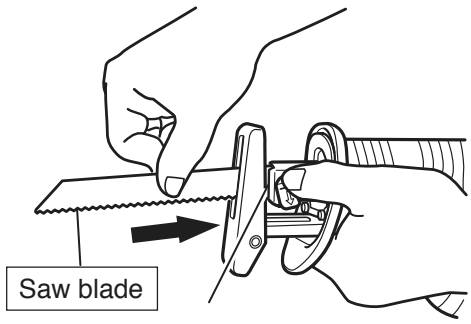
The tool-less blade detachable mechanism can be disassembled and reassembled without removing the front cover.

<How to mount a saw blade>

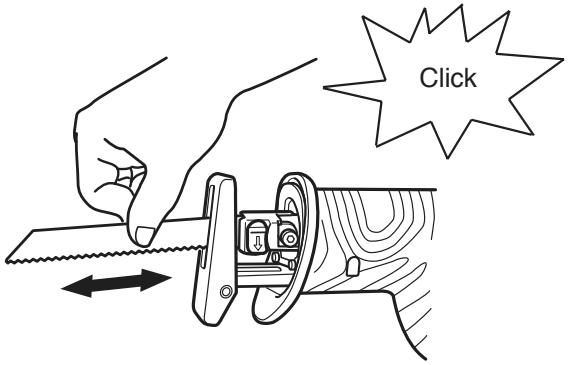
(a) Push the lever in the direction of the arrow marked on the lever.

(b) Insert the saw blade all the way into the small slit of the plunger tip with the lever pushing.

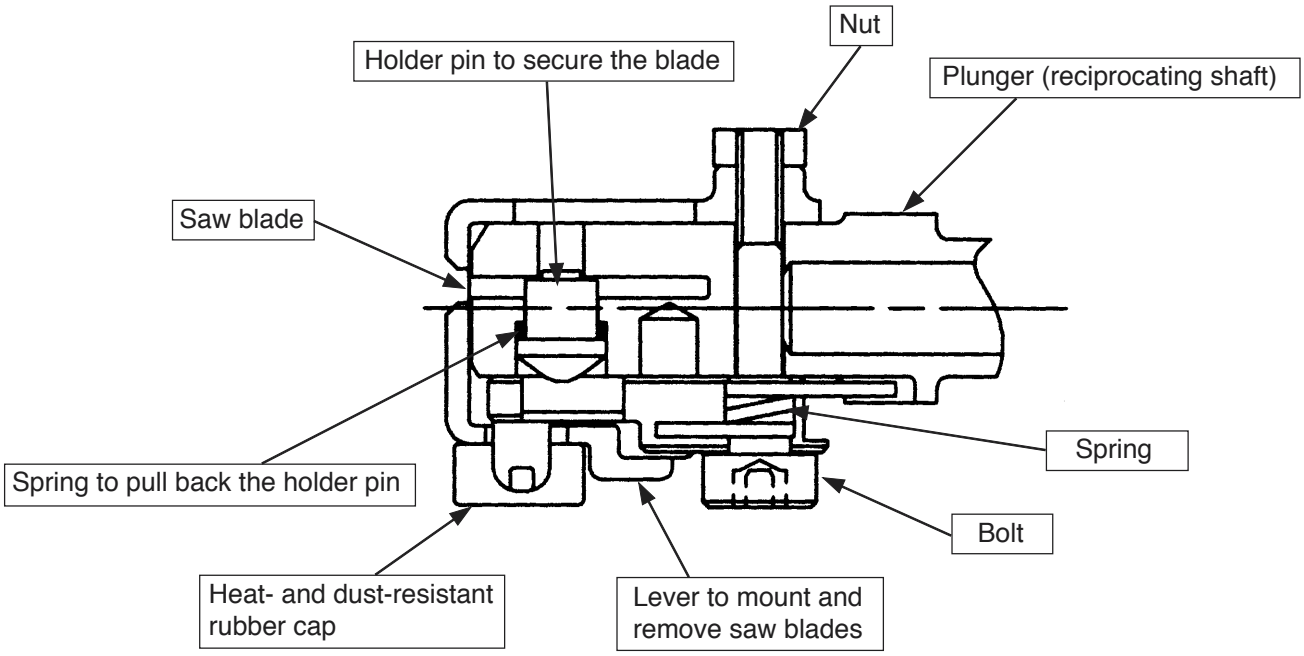




(c) Release the lever and pull the back of the saw blade two or three times by hand to check that the blade is securely mounted. When pulling the blade, you will know it is properly mounted if it clicks and the lever moves slightly.



< Construction of the tool-less blade detachable mechanism >

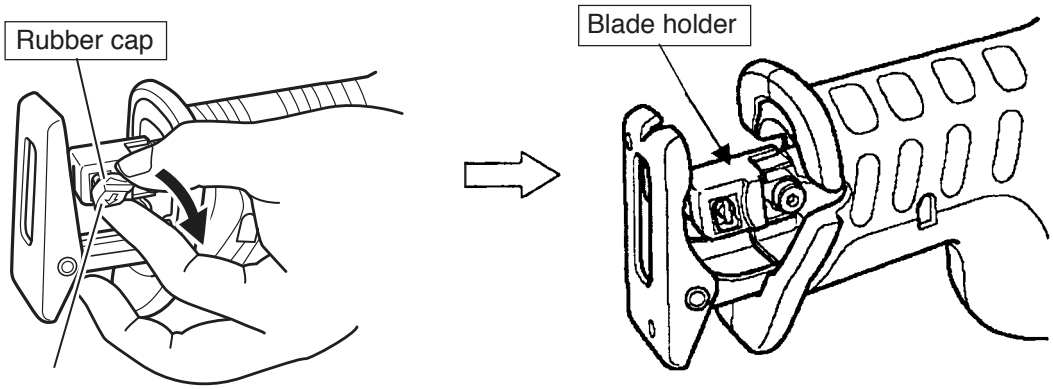


< Maintenance of the tool-less blade detachable mechanism >

After use, clean the blade mount with a brush to ensure that the tool-less blade detachable mechanism can function smoothly. In addition to the regular maintenance, perform the following effective maintenance occasionally.

○ Cleaning the inside of the tool-less blade detachable mechanism

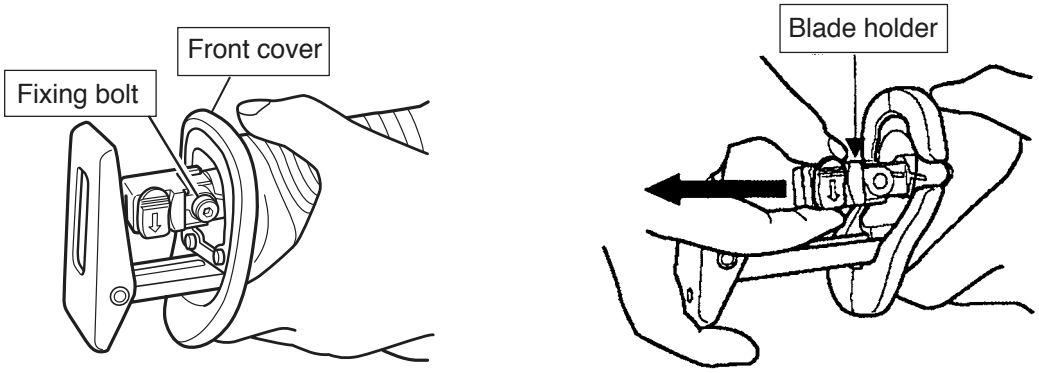
Pull the rubber cap provided on the lever in the direction of an arrow mark shown below. Then the rubber cap can be removed from the lever easily. Remove dust from the inside of the blade holder with air or the like.



< Disassembly and cleaning of the tool-less blade detachable mechanism >

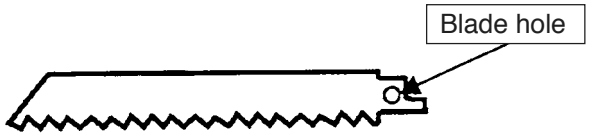
The tool-less blade detachable mechanism can be easily disassembled or reassembled because the fixing bolt can be loosened or tightened without removing the front cover. To disassemble the tool-less blade detachable mechanism, remove the fixing bolt and pull out the blade holder.

CAUTION: This is a special bolt comprised of an M4 thread and an M5 hexagonal socket. Be careful not to break the bolt by overtightening.



○ In case the saw blade is apt to come off

The saw blade is apt to come off if the blade hole is worn out. Replace the saw blade with new one. If the new saw blade comes off even after replacement, the holder pin may be worn out. Replace the holder pin with new one.



Refer to the Handling Instructions for detailed information about saw blade replacement.

(2) Saw blade can be mounted in either direction, upward or downward

The Model CR 18DMR is convenient for cutting materials on the floor or near window frames, and also for plunge cutting on plywood panels because the saw blade can be installed upside down.

< Plunge cutting on plywood panels >

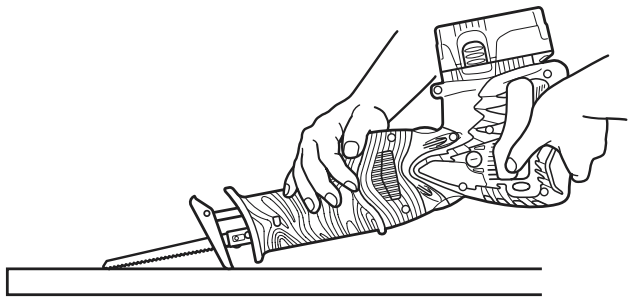


Fig. 1

Refer to the Handling Instructions for detailed information about plunge cutting on plywood panels.

(3) Replaceable carbon brush to elongate motor life

The carbon brush can be replaced from the outside of the motor to elongate the motor life and to enhance the maintainability. The carbon brush can be easily removed from the motor with a flat-blade screwdriver as shown in Fig. 2, and can also be easily and securely mounted to the motor by hooking the nail of the carbon brush on the contact portion outside the brush tube.

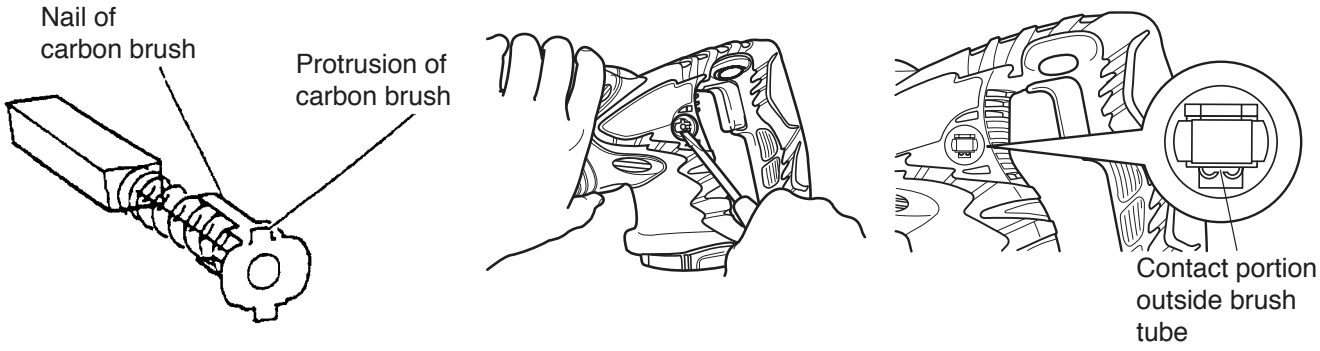


Fig. 2

(4) Lock-off button

The lock-off button is adopted to avoid the switch from unintentionally being turned on during storage or carrying.

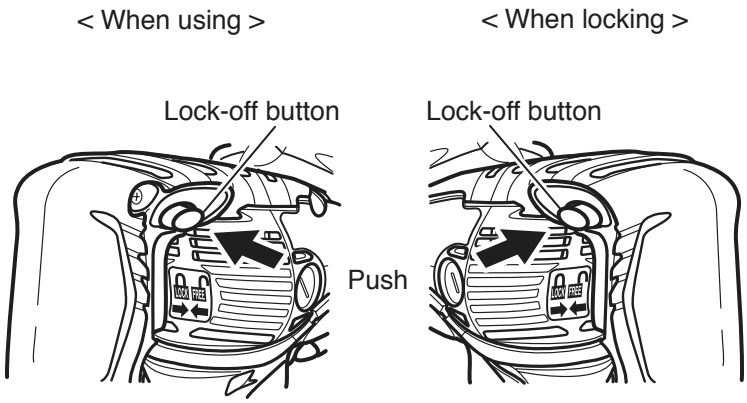


Fig. 3

(5) Convenient switch trigger shape for easy operation

The switch trigger is large enough to operate with two fingers for ease of operation. Even if the tool is upside down as shown in Fig. 1, the trigger switch can be easily operated.

5. SPECIFICATIONS

5-1. Specifications

<table>
<tr><td>Capacity</td><td>Max. cutting size</td><td>Steel pipe outer diameter 90 mm (3-1/2")
Wood thickness 90 mm (3-1/2")
Mild steel plate (thickness) 10 mm (3/8")</td></tr>
<tr><td>Number of stroke</td><td colspan="2">0 — 2,100/min.</td></tr>
<tr><td>Stroke</td><td colspan="2">28 mm (1-1/8")</td></tr>
<tr><td>Type of motor</td><td colspan="2">DC magnet motor Max. output: 380 W</td></tr>
<tr><td>Enclosure</td><td colspan="2">Housing ····· Glassfiber reinforced polycarbonate resin
Front cover ····· TPE (Thermoplastic elastomer)
Gear cover and upper cover ····· Aluminum alloy die casting
Storage battery ····· Glassfiber reinforced polyamide resin
Charger ····· ABS resin</td></tr>
<tr><td>Type of switch</td><td colspan="2">Variable trigger switch (with brake)</td></tr>
<tr><td>Handle shape</td><td colspan="2">D-type handle</td></tr>
<tr><td>Weight</td><td colspan="2">Main body 3.8 kg (8.4 lbs.) (with battery)
Charger UC 24YFA 0.6 kg (1.3 lbs.)</td></tr>
<tr><td>Battery
(Model EB 1820L)</td><td colspan="2">Sealed cylinder nickel cadmium storage battery
Nominal voltage: DC 18V
Nominal life: Charging/discharging: approximately 1,000 times
(in case of Model UC 24YFA)
Nominal capacity: 2.0 Ah</td></tr>
<tr><td>Battery
(Model EB 1826HL/EB 1830HL)</td><td colspan="2">Sealed cylinder nickel-metal hydride storage battery
Nominal voltage: DC 18V
Nominal life: Charging/discharging: approximately 500 times
(in case of Model UC 24YFA)
Nominal capacity: 2.6 Ah/3.0 Ah</td></tr>
<tr><td>Charger
(Model UC 24YFA)</td><td colspan="2">Overcharge protection system:
(1) Battery voltage detection (Δ^2V system) for Ni-Cd battery
Mi-MH battery temperature detection (dT/dt system) for Ni-MH battery
(2) Battery surface temperature detection (thermostat or thermistor)
(3) 120 minutes timer
Power input: 90 W
Charging time: Approx. 50 minutes [for type EB 1820L battery at 20˚C (68˚F)]
Approx. 60 minutes [for type EB 1826HL battery at 20˚C (68˚F)]
Approx. 70 minutes [for type EB 1830HL battery at 20˚C (68˚F)]
Operable ambient temperature range: 0˚C — 40˚C (32˚F — 104˚F)
The maximum allowable temperature of the type EB 1820L battery is 60˚C (140˚F) and the type EB 1826HL or EB 1830HL battery is 45˚C (113˚F).
Indication method of battery charging function:
<table>
<tr><th colspan="4">Indications of the pilot lamp</th></tr>
<tr><td>Before charging</td><td>Blinks (RED)</td><td>Lights for 0.5 seconds. Does not light for 0.5 seconds. (off for 0.5 seconds)</td><td rowspan="2"></td></tr>
<tr><td>While charging</td><td>Lights (RED)</td><td>Lights continuously</td></tr>
<tr><td>Charging complete</td><td>Blinks (RED)</td><td>Lights for 0.5 seconds. Does not light for 0.5 seconds. (off for 0.5 seconds)</td><td rowspan="2"></td></tr>
<tr><td>Charging impossible</td><td>Flickers (RED)</td><td>Lights for 0.1 seconds. Does not light for 0.1 seconds. (off for 0.1 seconds)</td><td>Malfunction in the battery or the charger</td></tr>
<tr><td>Charging impossible</td><td>Lights (GREEN)</td><td>Lights continuously</td><td>The battery temperature is high, making recharging impossible.</td></tr>
</table>
</td></tr>
</table>

Standard accessories	(BLFK) (HLFK)	Charger (UC 24YFA) ····· 1 Battery (EB 1820L/EB 1830HL) ····· 1 Blade (No. 103) ····· 1 Hexagonal bar wrench ····· 1 Plastic case ····· 1
	(2BLFK) (2HLFK)	Charger (UC 24YFA) ····· 1 Battery (EB 1820L/EB 1826HL/EB 1830HL) ····· 2 Blade (No. 103)/Blade (No. 103, No. 132) (Only for USA) ····· 1 Hexagonal bar wrench ····· 1 Plastic case ····· 1

5-2. Optional Accessories

The motor may lock depending on types of blades and materials used. For example, the motor may lock when cutting a steel pipe 45 mm in outer diameter with the No. 132 BI-METAL blade. Customers must be instructed to use appropriate blades corresponding to the materials to be cut.

(1) HCS blades

The blade numbers of HCS blades in Table 1 are engraved in the vicinity of the mounting position of each blade. Select appropriate blades by referring to Tables 1 and 3 below.

Table 1: HCS blades

Blade No.	Uses	Thickness (mm)
No. 1	For cutting steel pipes less than 100 mm (4") in outer diameter	2.5 — 6 (3/32" — 1/4")
No. 2	For cutting steel pipes less than 30 mm (1-3/16") in outer diameter	2.5 — 6 (3/32" — 1/4")
No. 3	For cutting steel pipes less than 30 mm (1-3/16") in outer diameter	Below 3.5 (1/8")
No. 4	For cutting and roughing lumber	50 — 70 (2" — 2-3/4")
No. 5	For cutting and roughing lumber	Below 30 (1-3/16")
No. 8	For cutting vinyl chloride pipes less than 100 mm (4") in outer diameter	2.5 — 15 (3/32" — 5/8")
	For cutting and roughing lumber	Below 100 (4")
No. 9	For cutting steel pipes less than 100 mm (4") in outer diameter	2.5 — 6 (3/32" — 1/4")
No. 95	For cutting steel and stainless pipes less than 100 mm (4") in outer diameter	Below 2.5 (3/32")
No. 96	For cutting steel and stainless pipes less than 30 mm (1-3/16") in outer diameter	Below 2.5 (3/32")

(2) BI-METAL blades

The blade numbers of BI-METAL blades in Table 2 are engraved in the vicinity of the mounting position of each blade. Select appropriate blades by referring to Table 2 and 3 below.

Table 2: BI-METAL blades

Blade No.	Uses	Thickness (mm)
No. 101	For cutting steel and stainless pipes less than 60 mm (2-3/8") in outer diameter	2.5 — 6 (3/32" — 1/4")
No. 102	For cutting steel and stainless pipes less than 100 mm (4") in outer diameter	2.5 — 6 (3/32" — 1/4")
No. 103	For cutting steel and stainless pipes less than 60 mm (2-3/8") in outer diameter	2.5 — 6 (3/32" — 1/4")
No. 104	For cutting steel and stainless pipes less than 100 mm (4") in outer diameter	2.5 — 6 (3/32" — 1/4")
No. 105	For cutting steel and stainless pipes less than 60 mm (2-3/8") in outer diameter	2.5 — 6 (3/32" — 1/4")
No. 106	For cutting steel and stainless pipes less than 100 mm (4") in outer diameter	2.5 — 6 (3/32" — 1/4")
No. 107	For cutting steel and stainless pipes less than 60 mm (2-3/8") in outer diameter	Below 3.5 (1/8")
No. 108	For cutting steel and stainless pipes less than 100 mm (4") in outer diameter	Below 3.5 (1/8")
No. 121	For cutting and roughing lumber	100 (4")
No. 131	All purpose	——
No. 132	All purpose (except for cutting steel and stainless pipes more than 30 mm (1-3/16") in outer diameter)	——

(3) Selection of blades for other materials

Table 3

Material to be cut	Material quality	Thickness (mm)	Blade No.
Iron plate	Mild steel plate	2.5 — 10 (3/32" — 3/8")	No. 1, 2, 101, 102, 103, 104, 105, 106, 131, 132
		Below 3.5 (1/8")	No. 3, 6, 107, 108
Nonferrous metal	Aluminum Copper Brass	5 — 10 (3/16" — 3/8")	No. 1, 2, 101, 102, 103, 104, 105, 106, 131, 132
		Below 5 (3/16")	No. 3, 6, 107, 108
Synthetic resin	Phenol resin Melamine resin etc.	10 — 30 (3/8" — 1-3/16")	No. 1, 2, 4, 101, 102, 103, 104, 131, 132
		5 — 20 (3/16" — 3/4")	No. 3, 5, 8, 105, 106, 107, 108
	Vinyl chloride Acrylic resin etc.	10 — 30 (3/8" — 1-3/16")	No. 1, 2, 4, 101, 102, 103, 104, 131, 132
		5 — 20 (3/16" — 3/4")	No. 3, 5, 8, 105, 106, 107, 108

6. COMPARISONS WITH SIMILAR PRODUCTS

6-1. Specification Comparisons (18 V cordless reciprocating saw)

Maker			HITACHI		D	M	R	B	W
Model			CR18DMR	CR18DV					
Stroke		mm	28(1-1/8″)	28(1-1/8″)	25.4(1″)	23(7/8″)	30(1-3/16″)	19(3/4″)/32(1-1/4″)	19(3/4″)
No-load speed		min^{-1}	0-2,100	0-2,100	0-2,900	0-2,700	0-2,500	0-2,300	0-2,700
Dimensions	(Length)	mm	434(17.1″)	462(18.2″)	434(17.1″)	448(17.6″)	459	495(19.5″)	468(18.4″)
	(Height)		220(8.7″)	248(9.8″)	189(7.4″)	204	212	240	240(9.4″)
	(Width)		90(3.5″)	80(3.1″)	89(3.5)	95	89	86	84.4(3.3″)
Net weight		kg	3.8(8.4lbs.)	3.9(8.6lbs.)	3.2(7.1lbs.)	3.5(7.7lbs.)	4.1(9.2lbs.)	3.58(7.9lbs.)	3.7(8.3lbs.)
Vibration		dB	120	122	124	118	116	124	112
No-load noise		dB	81	80	89	79.2	82	79.2	75.5
Battery	Voltage	V	18	18	18	18	18	18	18
	Capacity	Ah	2.0/2.6/3.0	2.0/3.0	2.0	2.6	2.0	2.4	2.4
Features	Variable speed		Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Blade tool-less		Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Base tool-less		No	No	No	Yes	No	Yes	Yes
	Balance Weight	---	Yes	Yes	No	Yes	Yes	No	Yes
	Reciprocating Motion Mechanism	---	Crank	Crank	Recipro	Crank	Crank	Recipro	Crank
	Replaceable Carbon Brush	---	Yes	Yes	Yes	Yes	No	Yes	Yes
	Soft Grip	---	Yes	Yes	Yes	No	Yes	Yes	Yes

6-2. Working Performance per Single Charge (reference only)

< Cutting steel pipes >

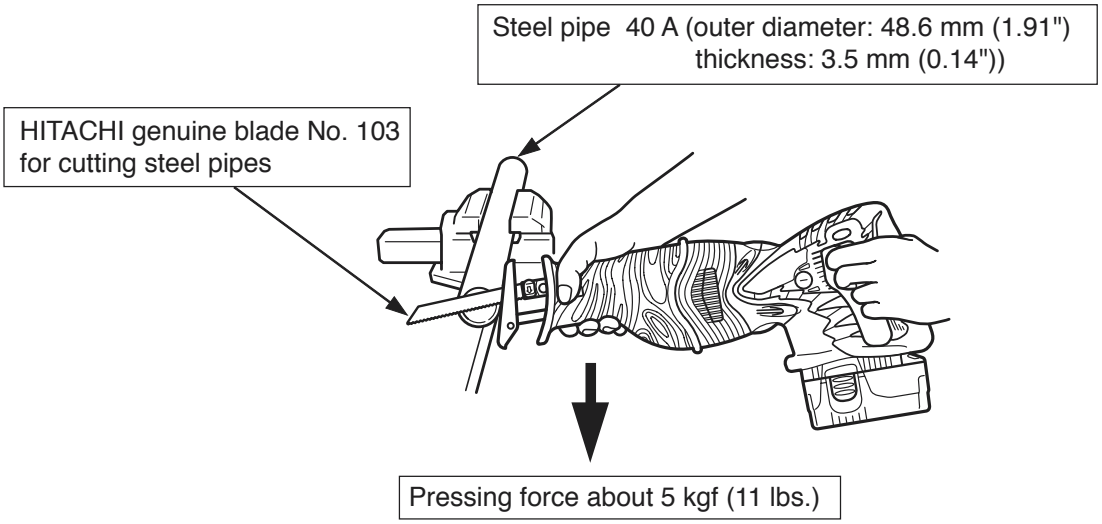


Fig. 4

< Cutting wood >

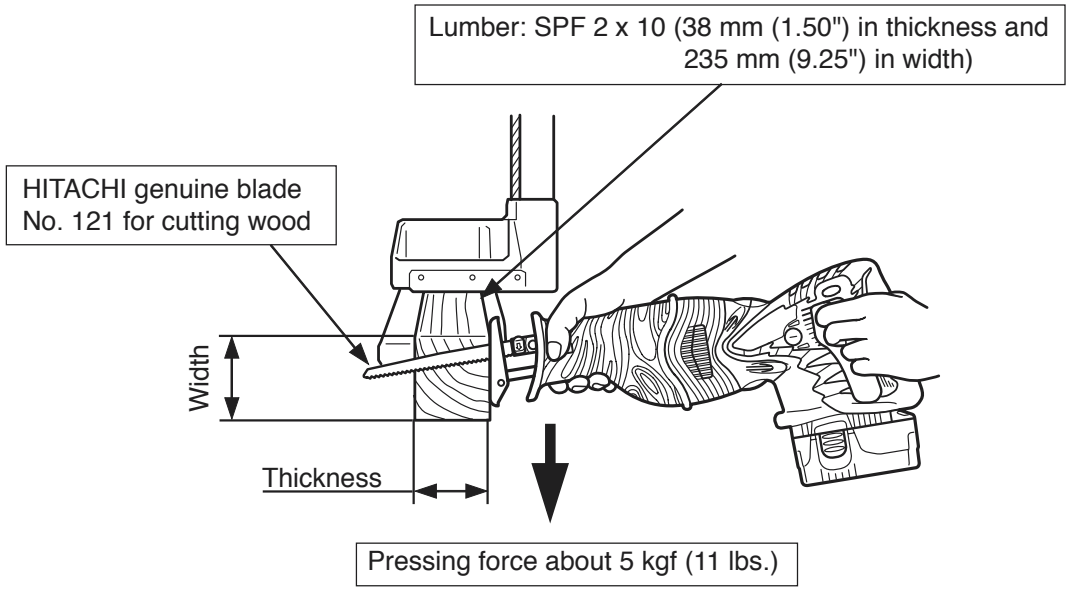


Fig. 5

The following test data should be used for reference purposes only since the cutting speed and the working capacity may vary depending on the operating conditions such as the pressing force, type of blades, materials, etc.

Material	Maker	Model	Working capacity (pcs.) 20 40 60 80 100	Cutting speed (sec/pc.)
Steel pipe 40A	HITACHI	CR18DV	17	17.8
		CR18DMR	16	18.6
	M		15	23.9
	B	(stroke 19mm)	12	27.6
		(stroke 32mm)	14	16.1
	W	(orbital)	18	15.6
		(no orbital)	15	22.7
	R		16	16.4
SPF 2×10	HITACHI	CR18DV	35	11.4
		CR18DMR	37	11.1
	M		28	14.5
	B	(stroke 19mm)	22	18.8
		(stroke 32mm)	30	8.6
	W	(orbital)	30	11.0
		(no orbital)	23	19.2
	R		29	13.5

7. PRECAUTIONS IN SALES PROMOTION

7-1. Safety Instructions

In the interest of promoting the safest and most efficient use of the Model CR 18DMR by all our customers, it is very important that at the time of sale, the salesperson carefully ensures that the buyer seriously recognizes the importance of the contents of the Handling Instructions, and fully understands the meaning of the precautions listed on the Caution Plate and Name Plate attached to each tool.

A. Handling Instructions

Salespersons must be thoroughly familiar with the contents of the Handling Instructions in order to give pertinent advice to the customer. In particular, they must have a thorough understanding of the precautions in the use of the cordless (battery charger type) electric power tools which are different from those of ordinary electric power tools.

(1) Before use, ensure that the unit is fully charged.
New units are not fully charged. Even if the units were fully charged at the factory, long periods without use, such as during shipping, cause the storage battery to lose its charge. Customers must be instructed to fully charge the unit prior to use.

(2) When charging storage batteries, use only the exclusive Model UC 24YFA Charger provided with the tool.
Because of the designed rapid-charging feature (about one hour), use of other battery chargers is hazardous.

(3) Ensure the power source voltage is the same as that indicated on the Name Plate of the charger. Use of any other power source (DC outlet, fuel powered generator, etc.) will cause the charger to overheat and burnt out.

(4) Do not use any voltage increasing equipment (transformer etc.) between the power source and the charger.
If the charger is used with voltage over and above that indicated on the unit, it will not function properly.

(5) Conduct battery charging at an ambient temperature range of 0 ˚C – 40 ˚C (32 ˚F – 104 ˚F).
Special temperature sensitive devices are employed in the charger to permit rapid charging. Ensure that customers are instructed to use the charger at the indicated ambient temperature range. At temperature over 40 ˚C (104 ˚F), the storage battery cannot be sufficiently charged. The optimum temperature range is 20 ˚C – 25 ˚C (68 ˚F – 77 ˚F).

(6) The battery charger should not be used continuously.
At high ambient temperature, if over three storage batteries are charged in succession, the temperature of the coils on the transformer will rise. After charging one battery, please charge the next battery after about a fifteen-minute inerval.

(7) Do not insert foreign objects into the air vents on the charger
The charger case is equipped with air vents to protect the internal electronic components from overheating. Caution the customer not to allow foreign materials, such as metallic or inflammable objects, to be dropped or inserted into the air vents. This could cause electrical shock, fire, or other serious hazards.

(8) Do not attempt to disassemble the storage battery or the charger.
Special devices, such as a thermistor, are built into the storage battery and charger to permit rapid charging. Incorrect parts replacement and/or wiring will cause malfunctions which could result in fire or other hazards. Instruct the customer to bring these units to an authorized service center in the event repair or replacement is necessary.

(9) Disposal of the Model EB 1820L, EB 1826HL or EB 1830HL storage battery

Ensure that all customers understand that Model EB 1820L, EB 1826HL or EB 1830HL Storage Battery should be returned to the Hitachi power tool sales outlet or authorized service center when they are no longer capable of being recharged or repaired. If thrown into a fire, the batteries may explode, or if discarded indiscriminately, leakage of the cadmium compound contained in the battery may cause environmental pollution.

B. Caution Plate

(1) The following basic safety precautions are listed on the Name Plate attached to the main body of each tool.

- For Australia and New Zealand

CAUTION
- Read thoroughly HANDLING INSTRUCTIONS before use.

- For the U.S.A. and Canada

WARNING
- To reduce the risk of injury, user must read and understand instruction manual.

AVERTISSEMENT
- Afin de réduire le risque de blessures, l'utilisateur doit lire et bien comprendre le mode d'emploi.

(2) The following cautions are listed on the Name Plate attached to the Model EB 1820L, EB 1826HL and EB 1830HL batteries.

- For Europe

CAUTION • Read thoroughly HANDLING INSTRUCTIONS before use. • Do not disassemble nor throw into fire.

- For the U.S.A. and Canada

CAUTION • For safe operation, see instruction manual. • Use HITACHI charger UC 24YFA for recharging.

(3) The following caution is listed on the Name Plate attached to the Model UC 24YFA Charger.

- For the U.S.A.

- For safe operation, see Instruction Manual.
- Charge HITACHI rechargeable battery types EB7, EB9, EB12, EB14, EB18 series, and EB24B. Other types of batteries may burst causing personal injury and damage.
- Charge between 32˚ and 104˚F.
- Indoor use only.
- Replace defective cord immediately.

7-2. Inherent Drawbacks of Cordless Reciprocating Saw Requiring Particular Attention During Sales Promotion

The cordless reciprocating saw offers many advantages; it can be used in places where no power source is available, the absence of a cord allows easy use, etc. However, any cordless tool has certain inherent drawbacks. Salespersons must be thoroughly familiar with these drawbacks in order to properly advise the customer in the most efficient use of the tool.

A. Suggestions and precautions for the efficient use of the tool

(1) Do not insert a foreign object into body vent holes.

The body of this tool has vent holes for improving the cooling efficiency. As a fan is built into the motor, a foreign object inserted through a vent hole may cause a failure. Please instruct customers to never insert a foreign object into the vent hole.

(2) Avoid "Locking" of the motor.

Locking of the motor will cause an overload current that could result in burning of the motor and/or rapid deterioration of the battery. Salespersons should advise the customer to immediately release the switch and stop operation if the motor becomes locked.

(3) Variation in amount of work possible per charge

Although the nominal chargeable capacity of the storage batteries used with the Model CR 18DMR is 2.0 Ah, 2.6 Ah and 3.0 Ah, the actual capacity may vary within 10% of that value depending on the ambient temperature during use and charging, and the number of times the batteries have been recharged. It should be noted that other factors which may have a bearing on the amount of work possible per charge are the working conditions (ambient temperature, type and moisture content of the workpiece, sharpness of the saw blades, etc.) and operational skill of the user.

B. Suggestions and precautions for the efficient use of the charger and storage batteries

If the Model EB 1820L Storage Battery is exposed to direct sunlight for an extended period or if the tool has just been operated for a long time, charging may not be possible if the temperature of the battery is above 60 ˚C (140 ˚F). If the Model EB 1826HL/EB 1830HL Storage Battery is exposed to direct sunlight for an extended period or if the tool has just been operated for a long time, charging may not be possible if the temperature of the battery is above 45 ˚F (113 ˚F). In such a case, the customer should be advised to place the battery in a shaded area with a good airflow, and allows sufficient cooling before recharging. This phenomenon is common to all existing batteries and chargers which employ temperature sensitive overcharge protection devices. The cooling time required before recharging can be accomplished varies from a few minutes to about 30 minutes, depending on the load, duration of use, and ambient temperature.

7-3. Front Cover

WARNING:

The Model CR 18DMR is equipped with the front cover to protect the operator against possible electric shock, and it is not intended for cutting live lines. The front cover covers both the gear cover and the upper cover to protect the operator against electric shock in the event that a live line is accidentally cut and electricity flows from the blade to the metallic enclosure. Customers must be instructed to hold the handle (made of polycarbonate resin) with one hand and the other hand on the front cover to support the main body during the cutting operation. Be sure to instruct the customers that the front cover must not be removed when using the Model CR 18DMR.

8. REPAIR GUIDE

8-1. Precautions in Disassembly and Reassembly

Please follow the precautions below for disassembly and reassembly procedures. The circled numbers in the following figures and the **[Bold]** numbers in the descriptions below correspond to the item numbers in the Parts List. Prior to attempting disassembly or replacement of the saw blade, ensure that the battery is removed.

8-1-1. Disassembly

(1) Removal of the Upper Cover **[8]**

Remove the Saber Saw Blade **[501]**. Remove the Hex. Socket Hd. Bolt (W/Flange) M5 x 12 **[25]** and pull out the Base **[16]**. Remove the two Machine Screws (W/Sp. Washer) M4 x 12 **[17]** and the Cover Plate **[18]**, and pull out the Front Cover **[19]**. Remove the four Hex. Socket Hd. Bolts (W/Sp. Washer) M5 x 16 **[9]** from the Upper Cover **[8]**. Pull the Upper Cover **[8]** straight and remove it.

(2) Removal of the Plunger **[3]** from the Upper Cover **[8]**

Remove the two Seal Lock Hex. Socket Flat Hd. Bolts M5 x 12 **[28]** from the Connector **[33]**. If the Seal Lock Hex. Socket Flat Hd. Bolts M5 x 12 **[28]** are too tight, heat the Upper Cover **[8]** to 100 – 150˚C then loosen the Seal Lock Hex. Socket Flat Hd. Bolts M5 x 12 **[28]**. Pull the Plunger **[3]** forward (toward the blade) and remove from the Upper Cover **[8]**.

(3) Removal of the Gear Cover Ass'y **[27]** and the Housing (A).(B) Set **[46]**

Remove the two Brush Caps **[47]** and the two Carbon Brushes (1 Pair) **[48]**. Remove the four Tapping Screws (W/Sp. Washer) D5 x 30 **[26]**. Then the Gear Cover Ass'y **[27]** (together with the Armature Ass'y DC 18V **[41]**) and Housing (A).(B) Set **[46]** can be removed.

(4) Removal of the Gear Cover Ass'y **[27]** from the Armature Ass'y DC 18V **[41]**

Remove the three Machine Screws (W/Sp. Washer) M4 x 12 **[17]**. Then the Gear Cover Ass'y **[27]** can be removed from the Armature Ass'y DC 18V **[41]**.

(5) Disassembly of the Armature Ass'y DC 18V **[41]**

Remove the Retaining Ring (E-type) for D10 Shaft **[38]** from the Armature Ass'y DC 18V **[41]** with a flat-blade screwdriver. Remove the Ball Bearing 6001VVCMPS2L **[39]** from the pinion side with the bearing puller ass'y (J-30). Then Bearing Cover (A) **[40]** can be removed. Remove the Ball Bearing 608VVC2PS2L **[42]** from the commutator side with the bearing puller ass'y (J-30).

(6) Removal of the Gear **[37]** from the Gear Cover Ass'y **[27]**

Remove the three Seal Lock Flat Hd. Screws M4 x 12 **[20]** through the hole of the Balance Weight **[36]**. Then the Gear **[37]** (together with the Balance Weight **[36]**, Spindle **[23]** and others) can be removed from the Gear Cover Ass'y **[27]**.

(7) Removal of the Gear **[37]** from the Spindle **[23]**

Hold at the width-across-flat portions of the Spindle **[23]** with a vise and remove the Nylock Hex. Socket Flat Hd. Bolt M6 x 16 **[29]**. Remove the Balance Weight **[36]**, Gear **[37]**, Bearing Cover (B) **[21]** and Ball Bearing 6901ZZCMPS2L **[22]**.

(8) Disassembly of the blade mounting section

Slide the Cap **[11]** (made of rubber) out of Lever (A) **[12]** with fingers horizontally. Remove the Special Bolt M4 **[10]**. Then Blade Holder (A) **[1]**, Lever (A) **[12]**, Spring (D) **[13]**, Holder Pin (B) **[14]** and Spring (B) **[15]** can be removed from the Plunger **[3]**. At this time, be careful not to lose Spring (B) **[15]**.

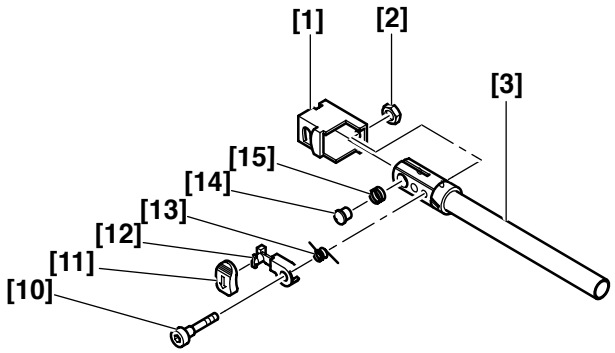


Fig. 6

(9) Disassembly of the housing section

Remove the seven Tapping Screws (W/Flange) D4 x 20 (Black) **[55]** and Housing (A).(B) Set **[46]**. Then the Pushing Button **[52]** and the power supply ass'y (DC-Speed Control Switch **[53]**, Brush Block **[44]**, Magnet **[43]** and Terminal Piece **[51]** are mounted) can be removed.

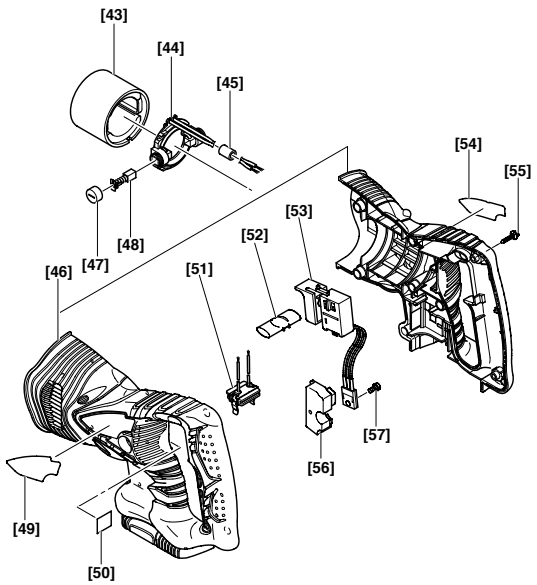


Fig. 7

8-1-2. Reassembly

Reassembly can be accomplished by following the disassembly procedures in reverse. However, special attention should be given to the following items.

(1) Mounting the saw blade mount (Figs. 8, 9 and 10)

Insert Spring (B) **[15]** and Holder Pin (B) **[14]** into the Plunger **[3]**. Apply Shell ALVANIA RL3 grease to the slanted portion of Lever (A) **[12]**. Mount the shorter end of Spring (D) **[13]** into Lever (A) **[12]** then mount Lever (A) **[12]** into Blade Holder (A) **[1]**. Keeping this state, insert the tip of Plunger **[3]** into Blade Holder (A) **[1]**. At this time, fit Spring (D) **[13]** in the groove of the Plunger **[3]** securely. Tighten the Special Bolt M4 **[10]** and Nut M4 (Black) **[2]** at the specified torque. Push the Cap **[11]** to Lever (A) **[12]** from the side so that the arrow mark on the Cap **[11]** points downward. At this time, check that there is no gap between the Cap **[11]** and Blade Holder (A) **[1]**. Be careful not to break the Special Bolt M4 **[10]** by overtightening with an M5 hexagonal wrench. Finally, mount and dismount the saw blade to check for operation.

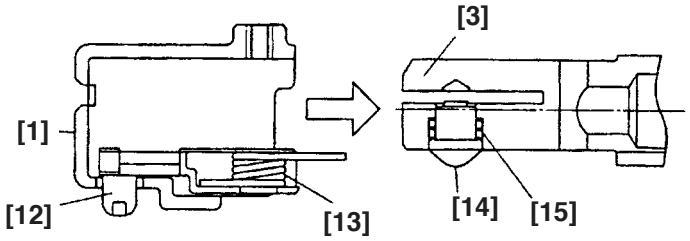


Fig. 8

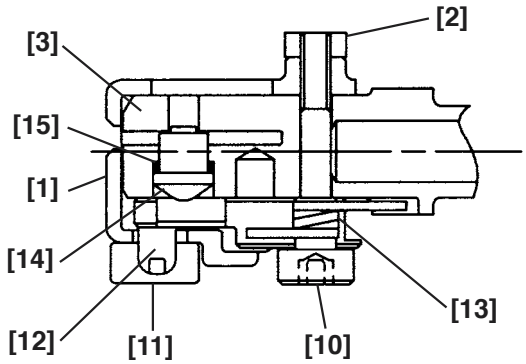


Fig. 9

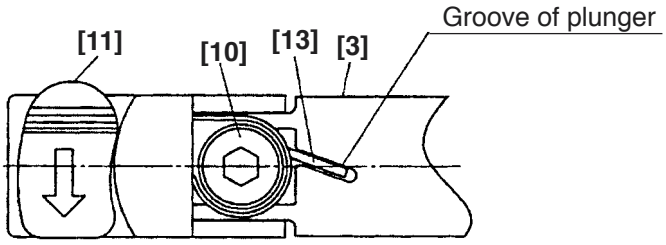


Fig. 10

(2) Reinstallation of the spindle and gear section to the Gear Cover Ass'y **[27]**

Insert the Spindle **[23]** into the Ball Bearing 6901ZZCMPS2L **[22]**, Bearing Cover (B) **[21]**, Gear **[37]** and Balance Weight **[36]** in order. Secure the spindle and gear section secured with the Nylock Hex. Socket Flat Hd. Bolt M6 x 16 **[29]** to the Gear Cover Ass'y **[27]** with the three Seal Lock Flat Hd. Screws M4 x 12 **[20]** aligning the holes of the Balance Weight **[36]** with the holes of Bearing Cover (B) **[21]** and the screw holes of the Gear Cover Ass'y **[27]**. If the first Seal Lock Flat Hd. Screw M4 x 12 **[20]** is tightened firmly, the other two Seal Lock Flat Hd. Screws M4 x 12 **[20]** cannot be aligned. Lightly tighten the first Seal Lock Flat Hd. Screw M4 x 12 **[20]**.

(3) Mount the Felt Packing **[5]**, Packing Washer **[4]** and O-ring (1AP-12) **[6]** without fail before inserting the Plunger **[3]** into the Upper Cover **[8]**.

(4) Mount the Seal Packing **[30]** and Packing (B) **[31]** without fail when mounting the Upper Cover **[8]** to the Gear Cover Ass'y **[27]**.

(5) Align the notch of the Magnet **[43]** with the protrusion of housing (A) side of Housing (A).(B) Set **[46]** when mounting the Magnet **[43]** to Housing (A).(B) Set **[46]**.

(6) Do not pinch internal wires between the matching surfaces of Housing (A).(B) Set **[46]** when storing internal wires in Housing (A). (B) Set **[46]**.

(7) Adhesives are applied to the following screws and bolts. When reusing these screws and bolts, apply Cemedine 1500 or Three Bond TB2410 to them.

Nylock Hex. Socket Flat Hd. Bolt M6 x 16 **[29]** ..... Cemedine 1500

Seal Lock Hex. Socket Flat Hd. Bolt M5 x 12 **[28]** ..... Cemedine 1500

Seal Lock Flat Hd. Screw M4 x 12 **[20]** ..... Three Bond TB2410

(8) A total of 35 g Shell ALVANIA RL3 grease is applied in the Gear Cover Ass'y **[27]** and the Upper Cover **[8]**. Apply grease sufficiently to the following portions:

- Needle Roller **[35]** in the Gear Cover Ass'y **[27]**
- Connecting Piece (A) **[34]**
- Tooth space and D7 pin of the Gear **[37]**
- Inside of the Connector **[33]**
- Sliding surface between the Connector **[33]** and the Upper Cover **[8]**
- Sliding surface between the Metal **[7]** and the Plunger **[3]**
- Inside of the Gear Cover Ass'y **[27]**
- Sliding surface of the Spindle **[23]**

(9) Tightening torques

Tapping Screw (W/Flange) D4 x 20 (Black) **[55]** ..... 2.0 ± 0.5 N·m (20 ± 5 kgf·cm)

Tapping Screw (W/Sp. Washer) D5 x 30 **[26]** ..... 2.9 ± 0.5 N·m (30 ± 5 kgf·cm)

Machine Screw (W/Washers) M3 x 12 **[57]** ..... 0.5 to 0.8 N·m (5 to 8 kgf·cm)

Machine Screws (W/Sp. Washer) M4 x 12 **[17]** ..... 1.8 ± 0.4 N·m (18 ± 4 kgf·cm)

Seal Lock Flat Hd. Screw M4 x 12 **[20]** ..... 1.8 ± 0.4 N·m (18 ± 4 kgf·cm)

Hex. Socket Hd. Bolt (W/Sp. Washer) M5 x 16 **[9]** ..... 8.8 ± 1.0 N·m (90 ± 10 kgf·cm)

Seal Lock Hex. Socket Flat Hd. Bolt M5 x 12 **[28]** ..... 5.4 ± 0.5 N·m (55 ± 5 kgf·cm)

Nylock Hex. Socket Flat Hd. Bolt M6 x 16 **[29]** ..... 11.8 ± 1.0 N·m (120 ± 10 kgf·cm)

Nut M4 **[2]** ..... 2.9 ± 0.5 N·m (30 ± 5 kgf·cm)

8-1-3. Wiring diagram

Be sure to perform wiring connections as indicated in Figs. 12, 13, 14 and 15.

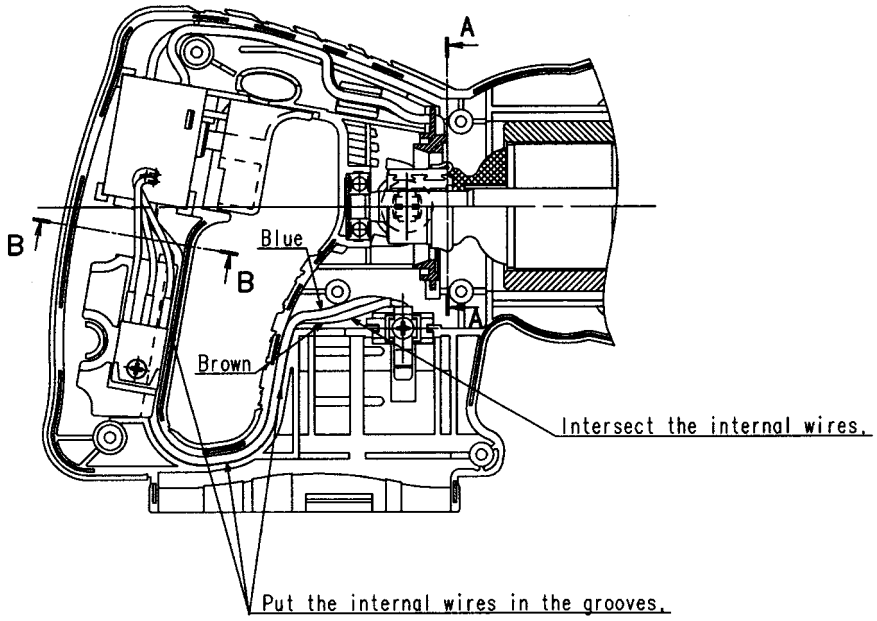


Fig. 11

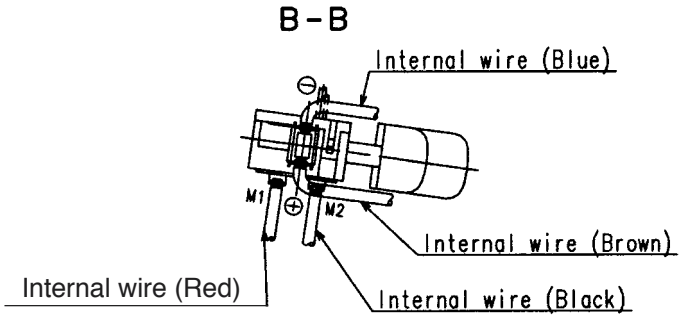


Fig. 12

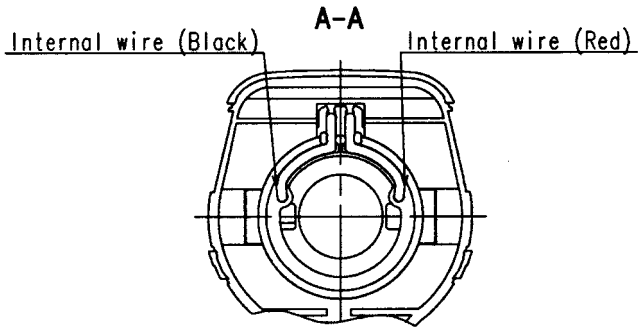
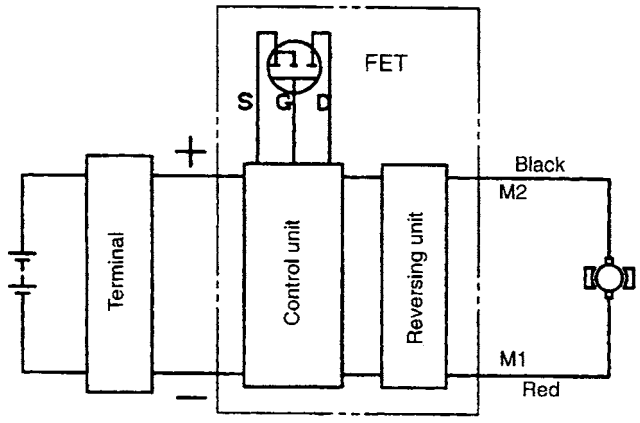


Fig. 13



Wiring diagram

Fig. 14

9. STANDARD REPAIR TIME (UNIT) SCHEDULES

MODEL	Variable / Fixed	10	20	30	40	50	60
CR 18DMR		Work Flow					
			DC-Speed Control Switch Terminal Piece Set	Housing (A). (B) Set Magnet			
			Armature Ass'y Ball Bearing (608VV) Ball Bearing (6001VV)				
	General Assembly	Base Front Cover	Gear Cover Ass'y Spindle Ball Bearing (6901ZZ) Gear Needle Roller Connecting Piece (A) Connector Connector Holder				
			Blade Holder (A) Plunger O-ring Upper Cover Seal Packing				

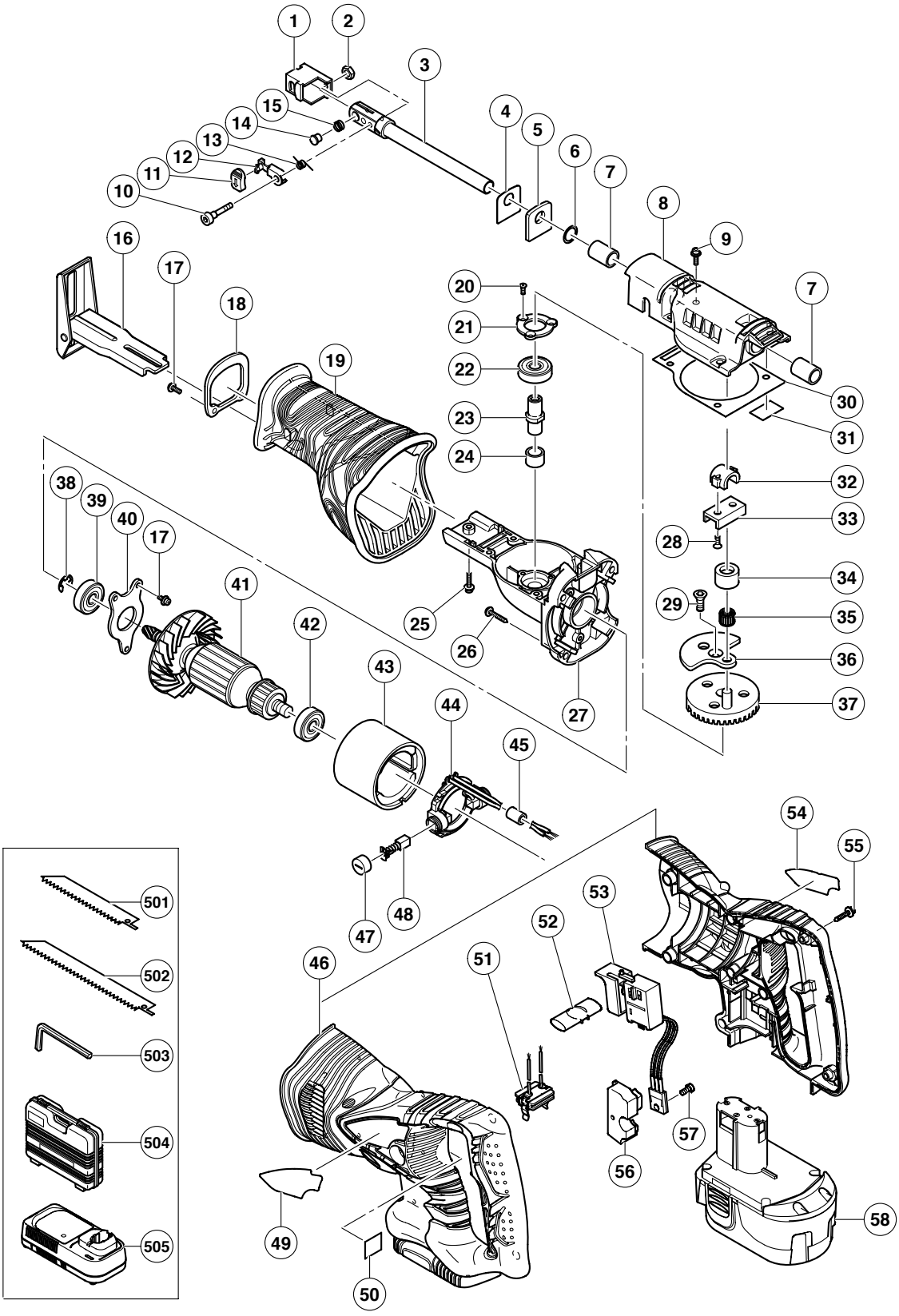
Hitachi Power Tools

LIST NO. G824

ELECTRIC TOOL PARTS LIST

■ CORDLESS RECIPROCATING SAW 2005 · 4 · 15

Model CR 18DMR (E1)



ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
1	321-132	BLADE HOLDER (A)	1		
2	322-709	NUT M4 (BLACK)	1		
3	324-472	PLUNGER	1		
4	996-401	PACKING WASHER	1		
5	996-400	FELT PACKING	1		
6	996-407	O-RING (1AP-12)	1		
7	956-589	METAL	2		
8	324-471	UPPER COVER	1		
9	305-574	HEX. SOCKET HD. BOLT (W/SP. WASHER) M5X16	4		
10	322-134	SPECIAL BOLT M4	1		
11	321-130	CAP	1		
12	321-131	LEVER (A)	1		
13	321-135	SPRING (D)	1		
14	321-134	HOLDER PIN (B)	1		
15	318-483	SPRING (B)	1		
16	319-866	BASE	1		
17	951-039	MACHINE SCREW (W/SP. WASHER) M4X12	5		
18	324-474	COVER PLATE	1		
19	324-473	FRONT COVER	1		
20	993-244	SEAL LOCK FLAT HD. SCREW M4X12	3		
21	319-849	BEARING COVER (B)	1		
22	690-1ZZ	BALL BEARING 6901ZZCMPS2L	1		
23	319-848	SPINDLE	1		
24	954-789	METAL (B)	1		
25	996-399	HEX. SOCKET HD. BOLT (W/FLANGE) M5X12	1		
26	986-011	TAPPING SCREW (W/SP. WASHER) D5X30	4		
27	319-844	GEAR COVER ASS'Y	1	INCLUD. 24	
28	319-875	SEAL LOCK HEX. SOCKET FLAT HD. BOLT M5X12	2		
29	319-851	NYLOCK HEX. SOCKET FLAT HD. BOLT M6X16	1		
30	319-856	SEAL PACKING	1		
31	319-874	PACKING (B)	1		
32	983-567	CONNECTOR HOLDER	1		
33	996-405	CONNECTOR	1		
34	983-541	CONNECTING PIECE (A)	1		
35	324-470	NEEDLE ROLLER	1		
36	319-852	BALANCE WEIGHT	1		
37	324-469	GEAR	1		
38	670-514	RETAINING RING (E-TYPE) FOR D10 SHAFT	1		
39	600-1VV	BALL BEARING 6001VVCMPS2L	1		
40	319-843	BEARING COVER (A)	1		
41	360-703	ARMATURE ASS'Y DC 18V	1	INCLUD. 38-40, 42	
42	608-VVM	BALL BEARING 608VVC2PS2L	1		
43	324-468	MAGNET	1		
44	324-478	BRUSH BLOCK	1		
* 45	318-247	FERRITE CORE	1	EXCEPT FOR AUS, NZL, USA, CAN, CHN	
46	324-475	HOUSING (A). (B) SET	1		
47	319-847	BRUSH CAP	2		
48	999-058	CARBON BRUSH (1 PAIR)	2		
49		HITACHI LABEL	1		
50		CAUTION LABEL	1		
51	324-517	TERMINAL PIECE	1		

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	52	319-760	PUSHING BUTTON	1		
	53	319-861	DC-SPEED CONTROL SWITCH	1		
	54		NAME PLATE	1		
	55	302-086	TAPPING SCREW (W/FLANGE) D4X20 (BLACK)	8		
	56	319-812	HEAT SINK	1		
	57	993-963	MACHINE SCREW (W/WASHERS) M3X12	1		
*	58	322-880	BATTERY EB 1820L (W/ENGLISH N.P.)	2		
*	58	322-878	BATTERY EB 1826HL (W/ENGLISH N.P.)	2		
*	58	322-877	BATTERY EB 1830HL (W/ENGLISH N.P.)	2		
*	58	322-876	BATTERY EB 1830HL (W/ENGLISH N.P.)	2	FOR TPE	

STANDARD ACCESSORIES

	ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
	501	318-613	SABER SAW BLADES NO. 103 150L P. 14 (5 PCS.)	1		
*	502	318-621	SABER SAW BLADES NO. 132 203L (5 PCS.)	1	FOR USA	
	503	944-458	HEX. BAR WRENCH 4MM	1		
	504	324-313	CASE	1		
	505		CHARGER (MODEL UC 24YFA)	1		

OPTIONAL ACCESSORIES

ITEM NO.	CODE NO.	DESCRIPTION	NO. USED	REMARKS	
601	959-610	SABER SAW BLADES NO. 1 (5 PCS.)	1		
602	958-182	SABER SAW BLADES NO. 2 (5 PCS.)	1		
603	958-183	SABER SAW BLADES NO. 3 (5 PCS.)	1		
604	959-611	SABER SAW BLADES NO. 4 (5 PCS.)	1		
605	958-185	SABER SAW BLADES NO. 5 (5 PCS.)	1		
606	958-188	SABER SAW BLADES NO. 8 (5 PCS.)	1		
607	996-427	SABER SAW BLADES NO. 9 (3 PCS.)	1		
608	959-799	SABER SAW BLADES NO. 95 (3 PCS.)	1		
609	959-800	SABER SAW BLADES NO. 96 (3 PCS.)	1		
610	318-611	SABER SAW BLADES NO. 101 150L P. 10 (5 PCS.)	1		
611	318-612	SABER SAW BLADES NO. 102 228L P. 10 (5 PCS.)	1		
612	318-614	SABER SAW BLADES NO. 104 228L P. 14 (5 PCS.)	1		
613	318-615	SABER SAW BLADES NO. 105 150L P. 18 (5 PCS.)	1		
614	318-616	SABER SAW BLADES NO. 106 228L P. 18 (5 PCS.)	1		
615	318-617	SABER SAW BLADES NO. 107 150L P. 24 (5 PCS.)	1		
616	318-618	SABER SAW BLADES NO. 108 228L P. 24 (5 PCS.)	1		
617	318-619	SABER SAW BLADES NO. 121 305L P. 6 (5 PCS.)	1		
618	318-620	SABER SAW BLADES NO. 131 305L P. 10/14 (5PCS.)	1		
619	318-621	SABER SAW BLADES NO. 132 203L (5 PCS.)	1		

* ALTERNATIVE PARTS

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